

WHAT IS CLAIMED IS:

1. An image pickup apparatus comprising:

a plurality of pixels, each of said pixels including a photoelectric conversion element adapted to perform photoelectric conversion and an amplifier element adapted to amplify and output a signal from said photoelectric conversion element; and

a control element adapted to limit an output level of said amplifier element so that the output level is prevented from falling to below a predetermined level.

2. An apparatus according to claim 1, wherein said control element includes a clipping circuit.

3. An apparatus according to claim 1, further comprising:

a load element adapted to serve as a load of said amplifier element,

wherein said control element limits the output level so as not to turn off said load element.

4. An apparatus according to claim 3, wherein said load element includes a MOS transistor, and said control element limits the output level so as to operate the MOS transistor in a saturation range.

5. An apparatus according to claim 1, wherein

said control element limits the output level in accordance with a level of a signal generated by said photoelectric conversion element.

5 6. An apparatus according to claim 1, wherein said control element is arranged on an output line to which a signal from said amplifier element is output.

10 7. An apparatus according to claim 1, wherein said amplifier element and said control element constitute an input unit of a differential amplifier circuit.

15 8. An apparatus according to claim 1, wherein said pixel includes a reset element adapted to reset an input unit of said amplifier element, and said control element controls low level of a pulse for driving said reset element and limits the output level of said amplifier element so as to prevent the output level
20 from falling to below the predetermined level.

 9. An apparatus according to claim 1, wherein said pixel includes a selector element adapted to select said pixel, and said control element includes
25 the same arrangement as said amplifier element and said selector element.

10. An apparatus according to claim 1, further comprising:

a lens adapted to form light into an image on said pixel;

5 an analog-to-digital conversion circuit adapted to convert a signal output from said pixel into a digital signal; and

a signal processing circuit adapted to process the signal from said analog-to-digital conversion circuit.

10

11. An image pickup apparatus comprising:

a plurality of pixels, each of said pixels including a photoelectric conversion element adapted to perform photoelectric conversion and an amplifier
15 element adapted to amplify and output a signal from said photoelectric conversion element;

a load element adapted to serve as a load of said amplifier element; and

a control element adapted to control to prevent
20 said load element from being turned off regardless of quantity of signal generated by said photoelectric conversion element.

12. An apparatus according to claim 11, wherein
25 said control element includes a clipping element.

13. An apparatus according to claim 11, wherein said load element includes a MOS transistor, and said control element limits an output level so as to operate the MOS transistor in a saturation range.

5

14. An apparatus according to claim 11, wherein said control element limits an output level in accordance with a level of a signal generated by said photoelectric conversion element.

10

15. An apparatus according to claim 11, wherein said control element is arranged on an output line to which a signal from said amplifier element is output.

15

16. An apparatus according to claim 11, wherein said amplifier element and said control element constitute an input unit of a differential amplifier circuit.

20

17. An apparatus according to claim 11, wherein said pixel includes a reset element adapted to reset an input portion of said amplifier element, and said control element controls low level of a pulse for driving said reset element and limits an output level of said amplifier element so as to prevent the output level from falling to below a predetermined level.

25

18. An apparatus according to claim 11, wherein
said pixel includes a selector element adapted to
select said pixel, and said control element includes
the same arrangement as said amplifier element and said
5 selector element.

19. An apparatus according to claim 11, further
comprising:

10 a lens adapted to form light into an image on said
pixel;

an analog-to-digital conversion circuit adapted to
convert a signal output from said pixel into a digital
signal; and

15 a signal processing circuit adapted to process the
signal from said analog-to-digital conversion circuit.